

**ABSTRACT**

The present invention provides a method (FIG. 6) and an apparatus that enable spare instruction slots within a code module to be utilized opportunistically for insertion of instructions associated with correctness check functions. During the generation of the initial instruction schedule, the compiler examines the initial instruction schedule and determines locations of spare instruction slots that can potentially be utilized for insertion of the correctness check code sequences. If a sufficient number of spare instruction slots exist to accommodate the correctness check code sequences, the sequences are inserted into the instruction schedule. If an insufficient number of spare instruction slots exist to accommodate a code sequence, the compiler adds additional instruction slots if a sufficient number of additional instruction slots can be added for insertion of the check sequences without exceeding a run-time performance cost tolerance level designated by a user.

09718059 112100